Michael T. Davis Algebra II – Delta & Eta	Practicing Finding the Zeros of Quadratic Functions in Vertex Form May 18, 2015

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Solve each equation. Remember to use ± to get all solutions.

$32 = 4(x-2)^2$

$8 = (x-2)^2$

$\pm\sqrt{8} = \sqrt{(x-2)^2}$

$\pm 2\sqrt{2} = x-2$

$2 \pm 2\sqrt{2} = x$

$x = 2+2\sqrt{2}$ $\quad x = 2-2\sqrt{2}$

$9 = (x+3)^2$

$\pm\sqrt{9} = \sqrt{(x+3)^2}$

$\pm 3 = x+3$

$-3 \pm 3 = x$

$x = -3+3$ $\quad x = -3-3$

$x = 0$ $\quad x = -6$

$100 = (7x-2)^2 - 25$

$125 = (7x-2)^2$

$\pm\sqrt{125} = \sqrt{(7x-2)^2}$

$\pm 5\sqrt{5} = 7x-2$

$2 \pm 5\sqrt{5} = 7x$

$\frac{2 \pm 5\sqrt{5}}{7} = x$

$x = \frac{2+5\sqrt{5}}{7}$ $\quad x = \frac{2-5\sqrt{5}}{7}$

$4 = (x+10)^2 - 12$

$16 = (x+10)^2$

$\pm\sqrt{16} = \sqrt{(x+10)^2}$

$\pm 4 = x+10$

$-10 \pm 4 = x$

$x = -10+4$ $\quad x = -10-4$

$x = -6$ $\quad x = -14$

Find the zeros of each quadratic function, which are the x-intercepts of the parabolas.

$f(x)=2(x+1)^2-4$ $0=2(x+1)^2-4$ $4=2(x+1)^2$ $2=(x+1)^2$ $\pm\sqrt{2}=\sqrt{(x+1)^2}$ $\pm\sqrt{2}=x+1$ $-1\pm\sqrt{2}=x$ $x=-1+\sqrt{2}$ $x=-1-\sqrt{2}$	$f(x)=3(x+1)^2+5$ $0=3(x+1)^2+5$ $-5=3(x+1)^2$ $-\frac{5}{3}=(x+1)^2$ No real zeros. No x-intercepts; $(x+1)^2$ cannot be negative.	$f(x)=-5(x-4)^2-8$ $8=-5(x-4)^2$ $\frac{8}{-5}=(x-4)^2$ No real zeros No real solutions No x-intercepts $(x-4)^2$ can't be negative
$f(x)=x^2+3x$ $0=x(x+3)$ $x=0$ $x=-3$	$f(x)=(x-12)^2+8$ $0=(x-12)^2+8$ $-8=(x-12)^2$ No real zeros No x-intercepts $(x-12)^2$ cannot be negative	$f(x)=4(x+6)^2$ $0=4(x+6)^2$ $0=(x+6)^2$ $\pm\sqrt{0}=\sqrt{(x+6)^2}$ $0=x+6$ $x=-6$